MEETING SUMMARY

washington river protection solutions

From: M.B. Skorska
Phone: 373-3978
Date: April 21, 2011
Location: WRPS Office
Subject: RFI Development

To: Distribution/Attendees

Attendees: Mike Barnes, ECOLOGY
Beth Rochette, ECOLOGY
Jeff Lyon, ECOLOGY
Joe Caggiano, ECOLOGY
Rebecca Gerhart, EPA
Maria Skorska, WRPS
Susan Eberlein, WRPS
Janet Badden, WRPS

PURPOSE: The purpose of this meeting was to discuss the development of RFI Sections 4 and 6.

Review Previous Meeting Summaries and Actions:
The meeting summaries for March 14 and 24, 2011, were reviewed and approved (with comments) by the team. Ecology requested that ATTACHMENT 1 in the March 14, 2011 meeting be revised to include the December 21, 2014 RFI Milestone, and to include the revised ATTACHMENT with today's meeting summary. See Attachment 1 included at the end of this Meeting Summary.

Ecology expressed the concern that the results of PA may not be available in time to support the September 2013 internal RFI Milestone to support Closure.

It was agreed that Ecology's input will become a part of the annotated outlines for Sections 2 and 3.

RFI Section 4

DOE presented a draft annotated outline for RFI Section 4 and the following was agreed to:

"In-situ" and "ex-situ" will be changed to "in-tank" and "ex-tank" respectively.

Section 4.1 will reference weekly operational maps of scanned WMA C surface where hot spots are noted. These maps are not released and their only objective is operational safety for workers.

An example of recent maps will be included, along with a discussion of challenges for mapping associated with operational parameters of the farm, for example, old surface is presently covered by gravel.

Ground water is not a subject of Section 4. RCRA monitoring program will be referenced in Section 4 to clarify that ground water is discussed in a separate Section of the RFI.

Section 4.2, last bullet is not needed.

When discussing the monitoring process in Section 4, other Sections where this information is reflected will be referenced by Section and page number.

Old data will be included if it provides meaningful information.

RFI Section 6
DOE presented a draft annotated outline for RFI Section 6.

Definitions of "surface" and "sub-surface" will be provided in the RFI, and repeated as needed in individual Sections.

ECOLOGY will review the Section 4 and Section 6 annotated outlines and will provide additional comments at the next meeting.

NEXT MEETING
Subjects:
RFI Section 5 (Data Presentation), and Communication for Stakeholders
Date: June 2, 2011
Time: 9:00-11:00
Location: Ecology Office

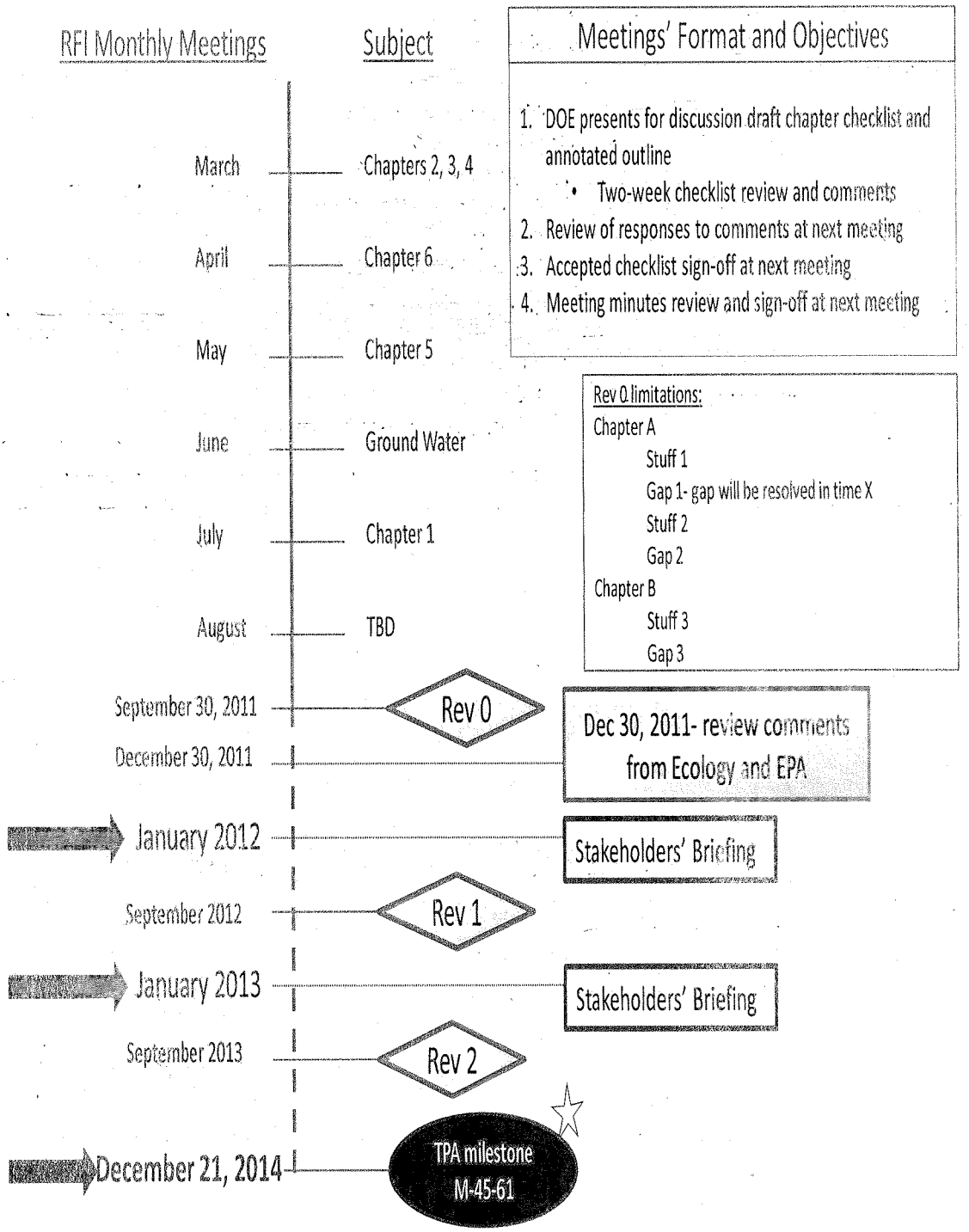
ACTIONS
Refer to the following table. Actions will be removed from the list after ORP and Ecology have agreed to their completion.

Robert Lober		8/2/2011
DOE Project Manager (print)	DOE Project Manager (signature)	Date
Jeffery S. Lyon		8/3/11
Ecology Project Manager (print)	Ecology Project Manager (signature)	Date

ACTIONS

Action number	Action required	Actionee	Status
3/14/11-1	Define the process by which sections of the draft RFI would be reviewed, revised, and maintained under configuration management during development.	S. Eberlein, B. Lober, J. Lyon	In progress.
4/21/11-1	Communicate to the management Ecology's concern that PA schedule may impact the RFI	M. Skorska	Assigned
4/21/11-2	Provide to Ginger Wireman material to develop communication for stakeholders	M. Skorska	Assigned

Attachment 1



ATTACHMENT 1 - regulators' comments included

4.0 Design of a Monitoring Program to Characterize Releases

Design of the monitoring program to assist in characterization of releases to soils will be described in this section. The key document is the WMA C *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area C* (RPP-PLAN-39114). It will be noted that ongoing activities, prompted by field conditions, and other activities are discussed at monthly coordination meetings between U.S. Department of Energy, Office of River Protection (ORP), Ecology and WRPS.

Table 2-1 and Figure 4-1 summarize the sampling and monitoring locations.

Information presented in this section will provide data and information related to following topical areas that correspond to RFI checklist questions noted in parenthesis:

- Area of contamination (4c)
- Distribution of contaminants within study area (4d)
- Depth of contamination (4e)
- Chemistry of contaminants (4f)
- Vertical rate of transport (4g)
- Lateral rate of transport in each stratum (4h)
- Persistence of contaminants in soil (4i)
- Potential for release from surface soils to air (4j)
- Potential for release from surface soils to surface water (n/a) (4k)
- Existing soil/ground-water monitoring data (4l)
- Evidence of vegetative stress (n/a) (4m)
- Potential for release to ground water (4n)

4.1 Objectives of the Monitoring Program

This section will present the objectives of the vadose zone soils monitoring program as it relates to the the sampling design of the Phase 2 program to further characterize the nature and extent of contaminants in the vadose zone that will eventually support the objectives of corrective measures as outlined in the WMA C *Data Quality Objectives Report Phase 2 Characterization for Waste Management Area C Corrective Measures Study* (RPP-RPT-38152) and in the WMA C *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area C* (RPP-PLAN-39114)

The objectives of the different types of monitoring activities considered at WMA C will be described. These monitoring activities include:

- Past and planned gamma, spectral gamma, and neutron logging at dry wells and groundwater wells that includes:
  - Historical monitoring in dry wells and groundwater wells
  - Phase 2 monitoring of dry wells and groundwater wells
  - Periodic and baseline logging prior to individual SST retrieval

- Direct push and borehole soil and sediment analysis

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- Individual SST monitoring that includes specific monitoring conducted before, during and after waste retrieval:
  - In-situ monitoring of waste levels in SSTs
  - Ex-situ leak detection monitoring using resistivity measurements

- Near-surface monitoring of radiological contamination consisting of:
  - Surface gamma scans (including scans from dry wells)
  - Analyses of direct push samples
  - Operational air monitoring

- Observations in groundwater wells. Note: groundwater monitoring programs are not a subject of this Section. Discussion about the presence of contaminants in groundwater wells will presented here to compliment our understanding of the presence and mobility of contaminants in the vadose zone soils, and their potential to impact groundwater quality.

Information presented in this section will provide data and information related to following topical areas that correspond to RFI checklist questions 4c through 4n:

- Area of contamination (4c)
- Distribution of contaminants within study area (4d)
- Depth of contamination (4e)
- Chemistry of contaminants (4f)
- Vertical rate of transport (4g)
- Lateral rate of transport in each stratum (4h)
- Persistence of contaminants in soil (4i)
- Potential for release from surface soils to air (4j)
- Potential for release from surface soils to surface water (n/a) (4k)
- Existing soil/ground-water monitoring data (4 l)
- Evidence of vegetative stress (n/a) (4m)
- Potential for release to ground water (4n)

4.2 Monitoring Constituents and Indicator Parameters

This section will discuss monitoring constituents and indicator parameters (See table 4-1) as defined in the DQO Summary Report, RPP-RPT-38152, 2008, *Data Quality Objectives Report Phase 2 Characterization for Waste Management Area C Corrective Measures Study and* the *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C.*

Table 4-1. Monitoring Constituents and Indicator Parameters Associated with Monitoring Activities and facilities

Monitoring Activities and Facilities	Monitoring Constituents and Indicator Parameters
Borehole logging at dry wells and groundwater wells	Gamma, Spectral gamma, and neutron logging
In-situ SST Monitoring	SST liquid level monitoring
Ex-situ leak detection monitoring	Electrical resistivity
Surface radiological contamination characterization	Surface gamma scanning
Monitoring to track releases of surface contamination to air due to atmospheric conditions	TBD

Information presented in this section will provide data and information related to following topical areas that correspond to RFI checklist questions noted in parenthesis:

- Distribution of contaminants within study area (4d)
- Depth of contamination (4e)
- Chemistry of contaminants (4f)
- Persistence of contaminants in soil (4i)
- Potential for release from surface soils to air (4j)
- Potential for release from surface soils to surface water (n/a) (4k)
- Existing soil/ground-water monitoring data (4l)

4.3 Monitoring Schedule

This section will discuss monitoring program schedule which is outlined in the Phase 2 Work Plan. Deviations from the Work Plan will be addressed.

4.4 Monitoring Locations

This section will discuss monitoring locations, as determined during the DQO meetings and described in the DQO Summary Report (RPP-RPT-38152), SAP (RPP-PLAN-38777), and the Phase 2 Work Plan, (RPP-PLAN-39114).

This section will provide information on locations of:

- Dry wells

- Groundwater monitoring wells where logging data and other information is collected to support vadose zone evaluation or monitoring
- In-situ and ex-situ tank monitoring locations
- Surface locations for radioactive contamination monitoring
- Air monitoring locations

4.4.1 Determine Study and Background Areas

This section will discuss the study boundary as determined during the Phase 2 DQO workshops and includes WMA C and the surrounding area. The boundary for vadose zone soil sampling and monitoring, as defined by the DQO, includes the WMA and the immediate surrounding areas (See Figure 4-1).

4.4.2 Determine Location and Number of Samples

The exact number of locations and samples collecting during the WMA C monitoring of soils will be provided in this section from the various site investigation reports published as a part of the past and current field investigation activities.

4.4.3 Predicting Mobility of Hazardous Constituents in Soil

This section will focus on evaluations of the mobility of constituents in the vadose zone and their potential impacts to groundwater and other media. These evaluations will largely be based on assessments and interpretations of long-term monitoring and characterization data collected in dry wells, direct push locations, surface and air sampling locations, and groundwater monitoring well locations. These analyses will also make use of available information of the characteristics and properties of constituents of concern and soils and supplemental laboratory studies (mainly batch or column studies of distribution coefficients (k_d) available for key COCs) developed for WMA C site specific samples and other comparable sediments collected at the Hanford Site,

As they become available, we also intend to make use of mathematical models specifically built for WMA C as part of the PA process to provide an analysis framework that integrates monitoring and characterization data and information to assess constituent mobility in the vadose zone and potential impacts to groundwater. However, these models are not expected to be available to be included in the earliest draft of this RFI.

Information presented in this section will provide data and information related to the following topical areas that correspond to RFI checklist questions noted in parenthesis:

- Vertical rate of transport (4g)
- Lateral rate of transport in each stratum (4h)
- Persistence of contaminants in soil (4i)
- Existing soil/ground-water monitoring data (4l)

- Potential for release to ground water (4n)
- Further soil stratigraphic and hydrologic characterization data (5a)
- Expanded sampling data (5b)
- Geophysical data on release location(s) (5c)
- Consideration of suface water – suggest mentioning upgradient and downgradient sources of vadose zone contamination.

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Figure 4-1. Aerial Boundary of Waste Management Area C and Data Quality Objectives Study Area showing Surface Facilities, dry well and groundwater logging locations, LDM monitoring locations, air monitoring locations, and groundwater well monitoring locations.

6.0 FIELD METHODS

6.1 INTRODUCTION

Field methods used in characterization of WMA C are described in *WMA A/AX and C Field Investigation Report* (RPP-3548) and *RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area C* (RPP-PLAN-39114). Field activity results for WMA C are summarized in Chapter 5 of this report. This chapter describes surface, subsurface and porewater field characterization methods used or planned at WMA C and discusses how the methods are integrated to characterize the soil.

Field methods used or planned for WMA C characterization include:

Surface Methods (Section 6.2)
Near surface sampling methods(Section 6.2.1)
Boreholes/Drywells
Surface radiation surveys(Section 6.2.2)
Surface Geophysical Surveys (6.2.3)
Near surface gamma scans(Section 6.2.4)

Subsurface(Section 6.3)
Boreholes/Drywells (Section 6.3.1)
Direct push (Section 6.3.2)
Sampling and Analyses (6.3.4)
Surface Geophysical Exploration (6.3.5)

Porewater Sampling (Section 6.4)

These field methods are described in the following sections.

6.2 SURFACE METHODS

This section discusses the purpose and use for surface sampling, describes methods used and discusses how surface samples are used, information obtained and limitations.

6.2.1 Near surface sampling methods

Historical surface samples were collected using a variety of methods including (include brief description of each and how used):
Soil Punch
Ring Samplers
Shovels, Spatulas, and Scoops
Hand Augers
Trenching

Dry wells?

The primary sampling method used in WMA C for surface and shallow soils is using direct push probe holes. Direct push sampling is used primarily as a subsurface characterization method and is described in Section 6.3.2. Surface samples were also collected via scoop or trowel at selected direct push sites. These surface samples are described in this section.

6.2.2 Surface radiation surveys

This section includes the purpose and a description of radiation surveys in WMA C.

6.2.3 Surface Geophysics Surveys.

This section includes the purpose and a description of geophysics surveys in WMA C (ie. Ground penetrating radar, electromagnetic, magnetometry).

6.2.4 Near surface gamma scans

This section includes the purpose and a description of near surface gamma scans to be tested for potential future application in WMA C.

6.3 SUBSURFACE METHODS

This section includes both methods to access subsurface samples and sampling methods.

6.3.1 Boreholes/Drywells

This section discusses the following:

The purpose of boreholes/drywells in WMA C,

Cable tool and diesel hammer borehole installation methods and tools,

Borehole sediment collection methods including: split spoon and grab sampling,

History and use of borehole and drywell logging in WMA-C, and a description of geophysical logging tools used, including gamma, spectral gamma and neutron logging tools.

6.3.2 DIRECT PUSH

This section describes direct push installation, logging and sampling methods and includes the following subsections:

Purpose of direct pushes,

Installation and decommissioning of direct push probe holes using the hydraulic hammer unit (HHU),

Geophysical logging of probe holes,

Potential beta probe logging,
Sediment collection approach and method,

Installation of deep electrodes,

Subsurface sampling and analysis using thin wall tube samplers.

6.3.4 Subsurface Sampling

This section describes Hollow-Stem Augers and Solid-Stem Augers, used historically for subsurface sampling, core samplers and split-spoon samplers used for boreholes and drywells and Thin-Walled Tube Samplers used for direct push holes.

6.3.5 Surface Geophysical Exploration (SGE)

This section discusses the purpose and use of SGE information, describes SGE systems and field data collection and methods to map resistivity anomalies in the subsurface.

6.4 POREWATER METHODS

This section describes specific analyses performed to measure porewater characteristics in the soils. Surface and subsurface samples for porewater analysis are obtained as described above for soil samples.